

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. 66513
14th STREET (MSAS NO. 103)
OVER THE
STRAIGHT RIVER
DISTRICT 6 - RICE COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION
BY
COLLINS ENGINEERS, INC.
JOB NO. 5221

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure units inspected at Bridge No. 66513, East and West Piers, were sound and in good condition with no structurally significant defects observed. A light accumulation of timber debris was observed at the upstream end of the West Pier. The channel bottom appeared stable with no appreciable scour.

INSPECTION FINDINGS:

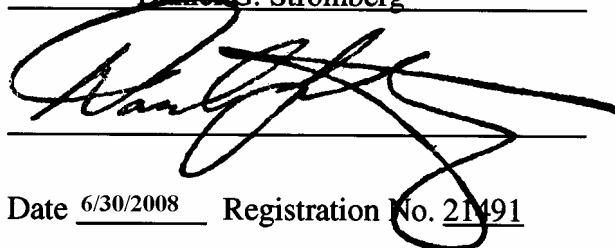
- (A) Concrete of both pier shafts was in smooth, sound and good condition with no notable deterioration.
- (B) A light accumulation of timber debris consisting of branches 3 inches and smaller was observed at the upstream end of the West Pier, extending from the channel bottom up 1 foot.

RECOMMENDATIONS:

- (A) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

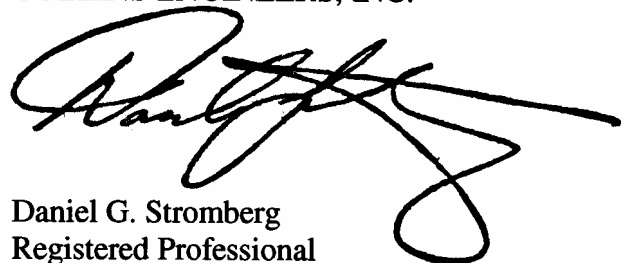
Daniel G. Stromberg



Date 6/30/2008 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: 66513

Feature Crossed: Straight River

Feature Carried: 14th Street (MSAS No. 103)

Location: District 6 - Rice County

Bridge Description: The bridge consists of a continuous three span multiple steel girder superstructure supporting a reinforced concrete deck. The superstructure is supported by two reinforced concrete abutments and two reinforced concrete piers. No design drawings with foundation details were provided. The piers are designated as the East and West Piers.

2. INSPECTION DATA

Professional Engineer/Team Leader: Daniel G. Stromberg, P.E., S.E.

Dive Team: Clayton G. Brookins, Valerie Roustan.

Date: October 23, 2007

Weather Conditions: Sunny, 56° F

Underwater Visibility: 1.0 foot

Waterway Velocity: 2.0 f.p.s

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: East and West Piers.

General Shape: The piers are single stem hammerheads with oblong rectangular shafts and rounded ends. No foundation information was available

Maximum Water Depth at Substructure Inspected: Approximately 6.0 feet.

4. WATERLINE DATUM

Water Level Reference: The top of the pier cap at the downstream end of East Pier.

Water Surface: The waterline was approximately 11.9 feet below reference.
Assumed Waterline Elevation = 88.1.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 7

Item 61: Channel and Channel Protection: Code 7

Item 92B: Underwater Inspection: Code B/10/07

Item 113: Scour Critical Bridges: Code G/07

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

 Yes X No



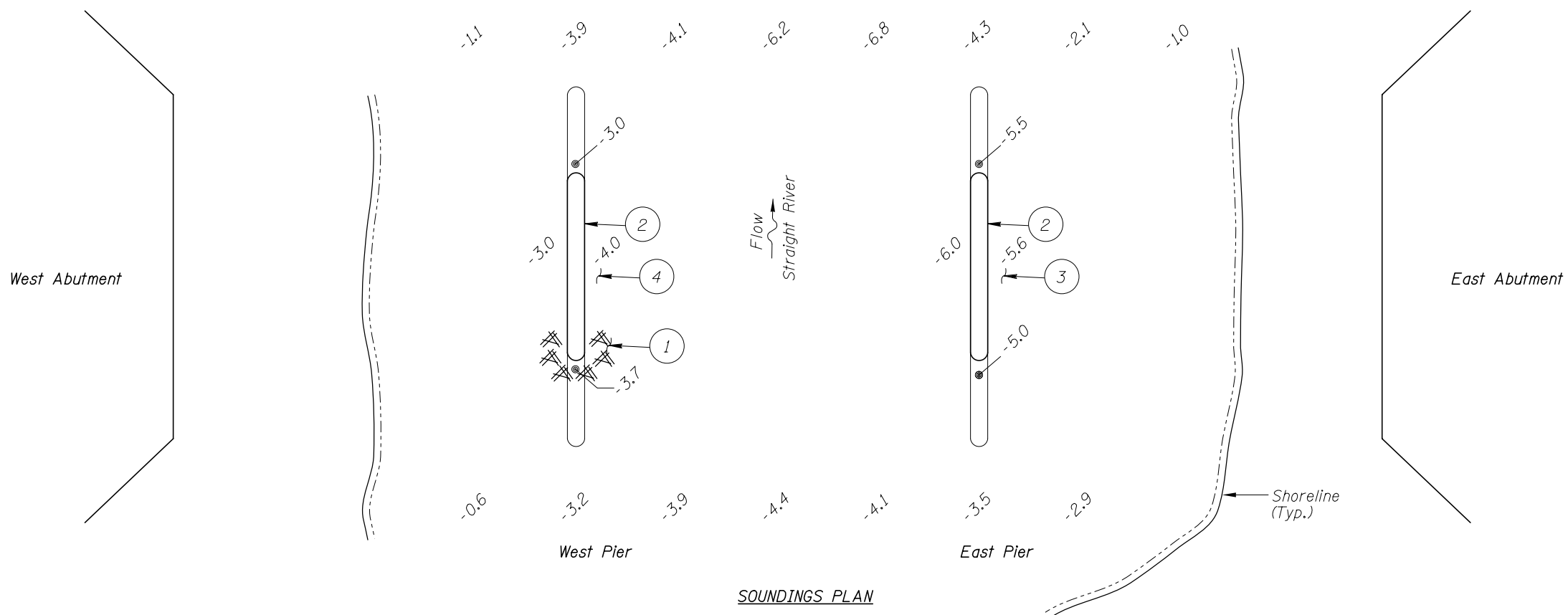
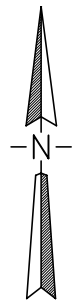
Photograph 1. Overall View of the structure, Looking Northeast.



Photograph 2. View of East Pier, Looking Northwest.



Photograph 3. View of West Pier, Looking Northwest.



INSPECTION NOTES:

- 1 A light accumulation of timber debris consisting 3-inch-diameter and smaller branches was observed at the upstream end of West Pier from the channel bottom up 1 foot.
- 2 The concrete was in smooth and sound condition with no notable deterioration.
- 3 Channel bottom around the East Pier consisted of rock with no probe rod penetration.
- 4 The channel bottom around the West Pier consisted of rock, gravel, and sand from the upstream end to the pier midpoint with no appreciable probe rod penetration and sand and silt with 6 inches of probe rod penetration along downstream half of the pier.

GENERAL NOTES:

- 1 The East and West Piers were inspected underwater.
- 2 At the time of inspection, on October 23, 2007, the waterline was located approximately 11.9 feet below the top of the pier cap on the downstream end of the East Pier. Since insufficient elevation information was available, an elevation of 100.0 was assumed. This corresponds to a waterline elevation of 88.1.
- 3 Soundings indicate the water depth at the time of inspection and are measured in feet.
- 4 Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units as well as around the pier structures.

Legend

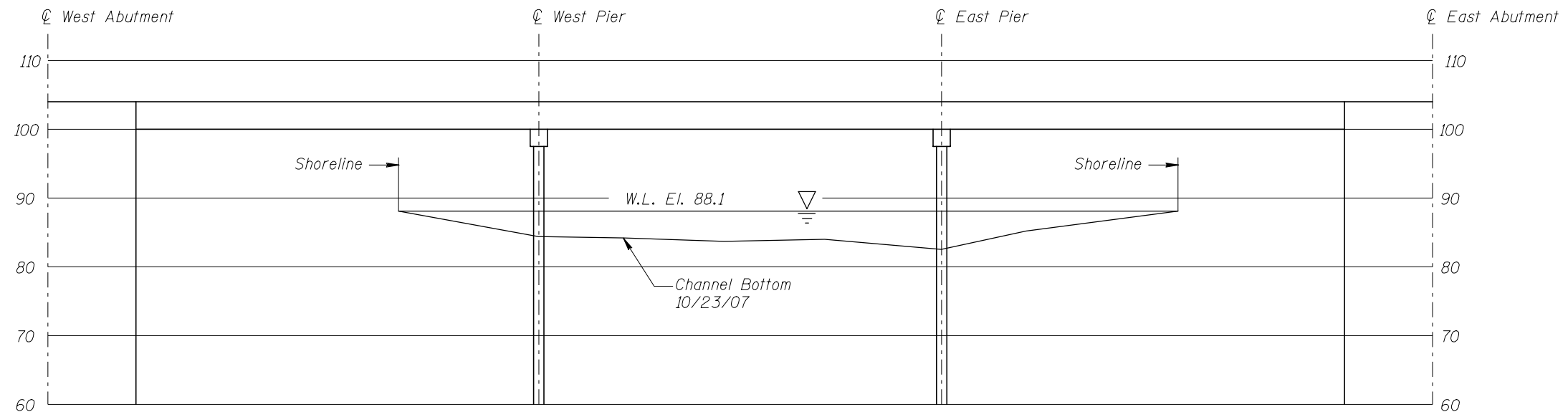
- 0.4 Sounding Depth (10/23/07)
- Timber Debris

MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

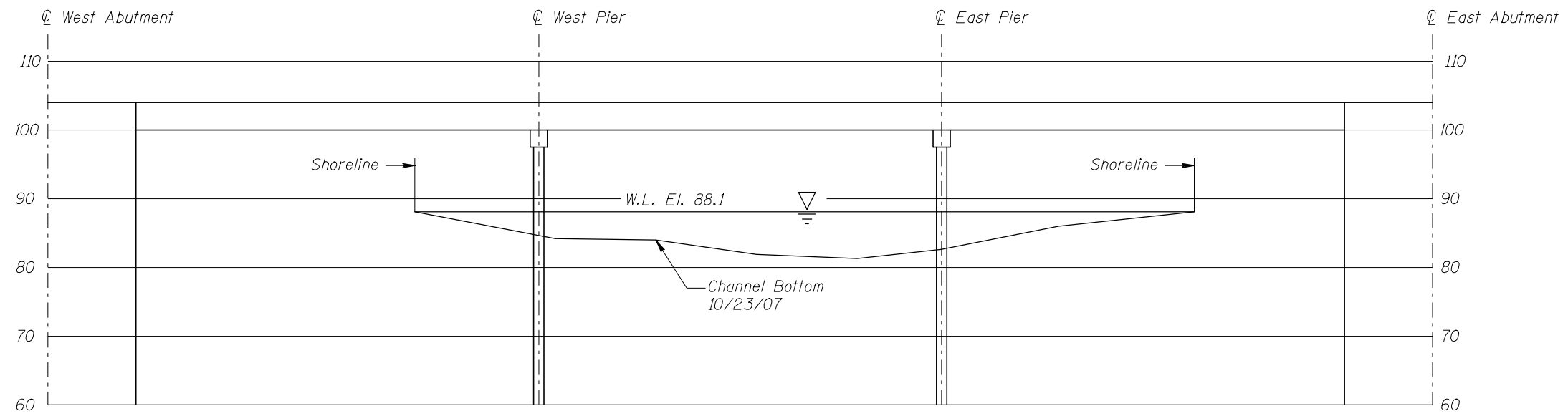
STRUCTURE NO. 66513
OVER THE STRAIGHT RIVER
DISTRICT 6, RICE COUNTY

INSPECTION AND SOUNDING PLAN

| | | |
|-----------------|---|-----------------|
| Drawn By: CAI | COLLINS ENGINEERS 123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com | Date: OCT, 2007 |
| Checked By: DGS | | Scale: NTS |
| Code: 522166513 | | Figure No.: 1 |



UPSTREAM FASCIA PROFILE



DOWNSTREAM FASCIA PROFILE

Note:

Refer to Figure 1 for General Notes.

| | | | |
|---|------------------------------------|---|-----------------|
| MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION | | | |
| STRUCTURE NO. 66513 OVER THE STRAIGHT RIVER DISTRICT 6, RICE COUNTY UPSTREAM AND DOWNSTREAM FASCIA PROFILES | | | |
| Drawn By: CAI | COLLINS ENGINEERS | 123 North Wacker Drive Suite 300 Chicago, IL 60606 (312) 704-9300 www.collinsengr.com | Date: OCT. 2007 |
| Checked By: DGS | | | Scale: 1"=20' |
| Code: 522166513 | | | Figure No.: 2 |

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 23, 2007

ON-SITE TEAM LEADER: Daniel G. Stromberg, P.E., S.E.

BRIDGE NO: 66513 WEATHER: Sunny, 56° F

WATERWAY CROSSED: Straight River

DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
 OTHER

PERSONNEL: Clayton G. Brookins, Valerie Roustan

EQUIPMENT: Scuba, U/W Light, Scraper, Sounding Pole, Lead Line, Probe Rod, Camera

TIME IN WATER: 10:30 a.m.

TIME OUT OF WATER: 11:00 a.m.

WATERWAY DATA: VELOCITY 2.0 f.p.s

VISIBILITY 1.0 foot

DEPTH 6.0 feet maximum at East Pier

ELEMENTS INSPECTED: East and West Piers

REMARKS: Overall, the concrete of the piers was smooth and sound with no notable deterioration. A light accumulation of timber debris consisting of branches 3 inches and smaller was observed at the upstream end of the West Pier, extending from the channel bottom up 1 foot. The channel bottom of the East Pier consisted of rock with no probe rod penetration and the channel bottom at the West Pier consisted of rock, gravel, and sand from the upstream end to the midpoint of the pier, again with no appreciable probe rod penetration, and sand and silt with a maximum probe rod penetration of 6 inches on the remaining portion of the pier.

FURTHER ACTION NEEDED: YES X NO

Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. 66513
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Daniel G. Stromberg, P.E., S.E.
WATERWAY CROSSED Straight River

INSPECTION DATE October 23, 2007

NOTE: USE ALL APPLICABLE CONDITION DEFINITIONS AS DEFINED IN THE MINNESOTA RECORDING AND CODING GUIDE INCLUDING GENERAL, SUBSTRUCTURE, CHANNEL AND PROTECTION, AND CULVERTS AND WALL DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

| UNIT REFERENCE NO. | UNIT DESCRIPTION | MAXIMUM DEPTH OF WATER | SUBSTRUCTURE | | | | | | CHANNEL | | | | | GENERAL | | | | | |
|--------------------|------------------|------------------------|--------------|----------------------------|----------|--------------|-----------------|--------------------------------------|---------|--------------------|-----------------------|----------------------|--|----------|-------|--------|-----------------|--------------------------------|-------|
| | | | PILING | COLUMNS, SHAFTS, OR FACES* | FOOTINGS | DISPLACEMENT | OTHER (BRACING) | OVERALL SUBSTRUCTURE CONDITION CODE* | SCOUR | EMBANKMENT EROSION | EMBANKMENT PROTECTION | OTHER (DRIFT/DEBRIS) | OVERALL CHANNEL & PROTECTION CONDITION | CONCRETE | STEEL | TIMBER | LOSS OF SECTION | PREVIOUS REPAIR OR MAINTENANCE | OTHER |
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| | East Pier | 6.0' | N | 7 | N | 9 | N | 7 | 8 | 7 | 7 | 7 | 7 | 7 | N | N | N | N | N |
| | West Pier | 4.0' | N | 7 | N | 9 | N | 7 | 8 | 8 | 8 | N | 8 | 7 | N | N | N | N | N |
| | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |

*UNDERWATER PORTION ONLY

REMARKS: Overall, the concrete of the piers was smooth and sound with no notable deterioration. A light accumulation of timber debris consisting of branches 3 inches and smaller was observed at the upstream end of the West Pier, extending from the channel bottom up 1 foot. The channel bottom of the East Pier consisted of rock with no probe rod penetration and the channel bottom at the West Pier consisted of rock, gravel, and sand from the upstream end to the midpoint of the pier, again with no appreciable probe rod penetration, and sand and silt with a maximum probe rod penetration of 6 inches on the remaining portion of the pier.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.